

We claim:

1. A method for forming deep trenches in a semiconductor substrate, the method comprising:

- 5                   providing a semiconductor substrate;
- forming a pad oxide layer on the semiconductor substrate;
- forming a pad nitride layer on the pad oxide layer;
- forming a borophosphosilicate glass layer on the pad nitride layer;
- 10               forming a borosilicate glass layer on the borophosphosilicate glass layer; and
- forming deep trenches through the borosilicate glass layer, the borophosphosilicate glass layer, the pad nitride layer, the pad oxide layer, and into the semiconductor substrate.

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2. The method according to Claim 1, further comprising performing an annealing process between the steps of forming the borosilicate glass layer and the deep trenches.

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3. The method according to Claim 1, further comprising utilization of vapor of hydrogen fluoride to etch the borosilicate glass layer and the borophosphosilicate glass in an anisotropic manner.

4. A structure for forming deep trenches in a semiconductor substrate, the

structure comprising:

a semiconductor substrate;

a pad oxide layer on the semiconductor substrate;

a pad nitride layer on the pad oxide layer;

5 a borophosphosilicate glass layer on the pad nitride layer;

and

a borosilicate glass layer on the borophosphosilicate glass layer.